

**HINTS**  
**ON**  
**CHOLERA,**  
**AND**  
**ITS TREATMENT.**

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TO  
THE RIGHT HONORABLE  
S. R. LUSHINGTON,  
Governor of Madras,  
&c. &c. &c.

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inscribed by

His obedient humble Servant,

S. DICKSON,

*Assistant Surgeon H. M. 30th Foot.*



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## *Hints on Cholera.*

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IF upon a former occasion I have hazarded opinions at variance in some respects with those which I now feel incumbent on me to advocate, I should be unworthy the profession to which I belong, were I on that account to shun giving publicity to what I hold to be truth. The first case of Cholera which I witnessed made a deep impression on my mind, but it was not until the disease came under my notice in its epidemic shape, that it claimed from me the intense interest with which I have ever since regarded it. Although I neglected no opportunity of comparing symptoms with the result of post mortem examinations, I too frequently mistook the effect for the cause : nor should I now be able to explain (which I honestly believe I can) every feature of its proteus form, had I not availed myself of the analogies afforded me by other diseases similar in many of their symptoms. If I shall fail to convince others that I have in the following pages traced Cholera to its source, I have still the satisfaction of believing that I have succeeded in shewing what is right and what is wrong in its treatment, and if I cannot in a number of instances save the life of the patient, I shall not at least add to his sufferings by a hesitating or painful practice.

Dr. Mason Good, while he acknowledges that the whole nervous energy constituting *life* is sometimes in an instant annihilated by Cholera, without there being a premouitory symptom of abdomiual derangement, has with a strange inconsistency placed this disease in his class of Cœliaca. It is true the disorder usually commences with vomiting and purging—but both of these may be induced by *fear* which no one would for that reason call a cœliac affection. The complete rationality of the Patient is brought forward as an argument against Cholera being a disease of the Cerebrum; but we know that the sensific, motific and secretive nerves are to a certain extent independant of each other. In Cholera the brain loses its influence over the motific and secretive nerves—and these are the most essential to life. The idiot has, for the most part, but little sense of pain and can bear intense heat and cold with impunity; his sensific nerves are blunted, but having still the motific power in all his muscles and what is more to our present purpose in those of respiration, life in him not unfrequently proceeds to longevity. The Cholera Patient on the contrary is highly sensible of pain—he complains of the weight of a blanket and in the bath at 100 he feels the heat insupportable; but his muscular powers are prostrate, his stomach and bowels become irritable

or palsied, and the respiratory organs are unable to continue their functions. Cholera then is a disease of Neuralgia, and the immediate cause of neuralgic disorders is a diminution of nervous power, as is obvious from the little control which the brain possesses even over voluntary muscles. This decrease of energy may be the effect of a thousand causes, each producing its specific irritation. The action of the marsh poison is the common cause of Ague but strictures of the Urethra are sometimes attended with ague-fits—and the disease is occasionally produced artificially by the introduction of an armed bougie into the same passage. Epilepsy is as often the effect of irritation of the alimentary canal as of direct cerebral disease;—it may be produced also by various poisons. You may simulate Tetanus by exhibiting to an animal the nux vomica or by puncturing its spinal chord with a small stilet. Like every other neuralgic affection, Cholera I apprehend may have its origin in many causes, although when Epidemic as in India we shall find it more frequently arising from a vitiated atmosphere. I know but little difference betwixt the train of symptoms induced by the action of arsenic when injected into a vein and those observed in this disease I have seen it more than once occasioned by an over dose of salts and tartarised antimony.

The bite of certain snakes, concussion of the stomach from a blow and occasionally surgical operations are followed by a similar disorder. It is a frequent result of Gun shot wounds even of the extremities. The hydrocyanic and oxalic acids will produce it in its most fatal form ;—so will a stroke of lightning or electricity. In short whatever directly or indirectly by immediate contact or by sympathy, weakens the brain's energy, will according to its degree of violence and rapidity produce particular affections more or less approaching to this terrific disease.

It seems difficult at first view to account for the secretions of one Cholera Patient ceasing entirely while in another they continue to be carried on with preternatural activity.—Some individuals for example vomit bile to the last, altho' in general a want of bile in the ejected fluids is a characteristic of the disease. One Patient has no secretion from the bowels, another has no vomiting, a third dies without either of these symptoms. To explain this, it is necessary to observe that the various functions of gland, muscle and viscus terminate entirely when the nerves that supply them escape completely from the influence of the brain ;—that on the other hand when this influence is only slightly interrupted (by puncturing or partially



pressing them for example) the functions of each become morbidly active. The function of a muscle is contraction. Tetanus we have seen may be induced by puncturing the spinal chord ;—we see in this an example of morbidly active muscular function. Divide the spinal chord entirely and the muscles become palsied. The passion of grief affords another example. The tears flow profusely in common affections of this nature. But when every other feeling is absorbed in this one passion, the lachrymal secretion ceases, the eye is dry like a dead person's;—it is the glazed eye of Cholera unmoistened by a tear. Would to heaven this were the only secretion that ceased in Cholera. In its commonly fatal form the liver secretes no bile, the kidneys no urine, there is no moisture on the skin, or if there is, it is the cold clammy sweat that exudes from the atonic vessels of the moribund. It is not what Dr. Johnson terms it, a sweat squeezed out by spasms, for in this stage of the disease spasmodic action seldom exists.

Whether we diminish the energy of the brain by poisons, by certain passions such as terror, or by withdrawing from it the necessary supply of arterial blood we have diseases exactly analogous to Ague, Spasm, Cholera. Take the symptoms of uterine hæmorrhage.

Are they not word for word those of Cholera ?  
 “ Weariness and weight in the limbs, and  
 “ fainting and sighing and vomiting,”—“ a cer-  
 “ tain ghastliness of the countenance, a restless  
 “ disposition to change posture, a long con-  
 “ tinued cessation of the pulse at the wrist, a  
 “ gasping respiration like that produced by  
 “ running, a jactitation of the arms and legs  
 “ joined with a feeling of most oppressive  
 “ anguish,”—“ the whole body becomes damp  
 “ and chilly :”—and the Patient dies at last  
 of “ asphyxia.”\*

In its perfectly energetic state the brain controls the whole nervous system, and it only depends upon the degree and situation of its derangement whether one or every set of nerves become implicated in its diseases. In Cholera the muscles of the toes and fingers first act irregularly, then those of the legs and arms. Were the brain to lose its influence over those distant parts only, the danger would be nothing, but when the nerves of respiration and secretion also escape from its control, then and then only the disease approaches to fatality.—The Pneumogastric nerve, as its name denotes, supplies the stomach and lungs with the cerebral energy. A partial interruption to the brain's influence over it prevents di-

\* See Dr. Blundell's Lectures in the *Lancet*.

gestion and causes spasmodic vomiting and anxiety. When this influence is completely removed there is paralysis of both organs. In this case there is no longer any violent vomiting, whatever is now taken by the mouth is retained. The stomach is palsied and passive and equally unconscious of the presence of stimulant and diluent fluids. The breathing is rendered more and more difficult, for the dilating muscles of the glottis become paralyzed, while the constrictors receiving their nerves from the superior laryngeals, if they preserve their actions, must shut the glottis almost completely. The diaphragm, scaleni, pectoral and intercostal muscles are now all brought into play, but when the brain loses its power over these muscles, which it does as they become involved in the universal prostration, then the chest falls and the lungs collapse. The sufferer now coughs occasionally, complains of a cutting of his breath and the almost inaudible tone in which he answers your questions shews that the recurrent branch of the eighth pair is also paralyzed;—he speaks like a person who has cut this nerve in an attempt at suicide. The more the lungs collapse, the blood with greater difficulty reaches the left side of the heart. The little that does pass is black, viscid and of diminished temperature;—it is more carbonized than healthy venous

blood. The greater portion of this fluid is now collected in the right auricle and ventricle.—It is in vain that the anxious patient draws in the shape of a long sigh his deepest inspiration to relieve his loaded heart ; the blood cannot pass through the collapsed lungs ; it must seek new channels. The valves of the external veins prevent its regurgitating into them ; but the veins of the brain and abdominal viscera having no valves, these are the channels into which the superfluity of blood finds its way. These veins then are in a state of congestion and the superficial veins contract upon the small volume of blood sent to them by the ill-supplied arteries. Is not this the cause of the extremities becoming shrunk and almost bloodless? That they are cold and livid is owing to their not being supplied with red-blood. In *pueri cerulei* (the greater part of whose blood passes through the open foramen ovale directly to the left side of the heart without being acted upon by the atmosphere) the extremities are cold and blue, but they are not shrivelled as in Cholera, for they are sufficiently supplied with blood, though that blood from its carbonized state is unequal to the production of heat.

Let us examine the condition of a person whose lungs collapse from an artificial cause, the effusion of blood from a wound in the tho-

rax for example. “ You will find him, (says  
 “ Mr. John Bell) with bloody foam at his  
 “ mouth, his face pale in the cheeks and livid  
 “ round the lips and eyes, heaving the breast,  
 “ with intolerable anguish, tossing from side  
 “ to side in bed, the bloody foam encreasing—the  
 “ breathing becoming more difficult and the blood  
 “ and air rattling in the throat; then the pulse flut-  
 “ ters and the extremities constantly grow colder  
 “ till struggling in something like a convulsion  
 “ he expires.” Strip this description of a few ac-  
 cidental symptoms and you have before you a  
 case of Indian Cholera. In such a case more-  
 over there is always the dreadful thirst which in  
 many instances become the worst of the Cholera  
 patient’s sufferings. This thirst is common to  
 every disease in which there is a difficulty of re-  
 spiring ; it is one of the symptoms of Phthisis  
 and we have it in the passion of grief where also  
 the sighing and anxiety shew the inability to  
 breathe freely. Wherever the brain has lost its  
 perfect control over the lungs and Respiratory  
 muscles we have this burning thirst. It is the  
 “ death thirst” of the wounded in a field of bat-  
 tle and of all who have lost much blood.

The nerves over which the brain loses its in-  
 fluence in Cholera vary with almost every case,  
 although unfortunately the Respiratory nerves  
 are implicated in the greater number. This



circumstance then will explain why in a few rare instances the pulse remains full and strong, and the skin becomes even warmer than in the healthy state. In this form of the disease, the gastric portion only of the eighth pair with a few muscular nerves escapes from the brain's control, while the Respiratory portion of the former together with the external Respiratory nerves continues its functions undisturbed; hence the breathing being perfectly free, the blood passes through the lungs to the left side of the heart with ease, and though we have spasms and vomiting, the veins external and internal are well supplied; there is no absorption of the fat of the eyes or lips, no shrivelling of the extremities, and the skin wears its natural hue. Such cases I believe seldom terminate fatally.

If we turn to the post mortem appearances discovered on the examination of those who have died of Cholera, we shall find them precisely the same as are observed on opening animals that have been slowly bled to death, or in such as have been strangled or poisoned or have had the pneumogastric nerves divided.\* A collapsed

\* I have made a division of these nerves frequently in the lower animals.—A young kid which was the subject of one experiment lived forty-eight hours.—The first effect of the operation was a change in the bleat which was reduced to a whisper;—vomiting was afterwards induced together with difficulty of breathing,—the animal at first drawing a full inspiration

and engorged state of the lungs, a loaded condition of the brain, of the right side of the heart, and of all the internal veins are the result of such dissections. The small quantity of blood found in the arteries is black, the colon and urinary bladder for the most part are empty and contracted. In all the blood is almost uncoagulable. The experiments of Professor Coleman demonstrate that the whole air of the lungs is nearly exhausted in animals killed as abovementioned. When a dog was hanged in the common manner Mr. Coleman found that the cord could not be applied sufficiently tight to confine the air within the lungs although it almost entirely prevented *inspiration*. On passing a ligature however round the trachea so as to confine the air in the lungs, the blood reached the left side of the heart with freedom. In such cases the proportion of blood in the left which was immediately followed by a deep expiration,—or what in man would be called *sighing*. It seemed to suffer much from thirst which it was allowed to quench ad libitum.—The muscles of the thighs occasionally exhibited spasmodic twitches ;—and the extremities before death became quite cold.—On dissection the lungs were so gorged and collapsed that a section of them sunk in water.—The brain was much congested and both sides of the heart contained black blood.—The stomach was half full of milk which appeared to be undigested.—The vessels of the mesentery were loaded with blood.—The urinary bladder was found empty and contracted. The division of these nerves in this experiment produced almost all the symptoms and effects of Cholera.

side were to that of the right as nine to seven ;—  
 nay, when he distended the lungs by water  
 he obtained a similar result. If the animal is  
 suspended without this precaution the blood  
 cannot pass, for the lungs become collapsed,  
 they fall into a state of complete expiration.  
 “ Expiration (says Haller) will therefore, stop  
 “ the easy passage of the blood through the lungs  
 “ and when the whole thorax is compressed  
 “ together, *repells the venous blood into the veins*  
 “ *of the head and fills the brain and its sinuses.*  
 “ —In this manner a fresh necessity follows for  
 “ repeating the respiration, because the col-  
 “ lapsed vessels of the lungs resist the blood re-  
 “ peatedly expelled from the right ventricle of  
 “ the heart. And this makes another cause of  
 “ death in those animals which expire in ves-  
 “ sels exhausted of air, for in such the lungs  
 “ having the air drawn out of them appear  
 “ dense, solid and are heavier than water  
 “ whence they are rendered impervious to the  
 “ blood. Of the same kind is the death of  
 “ those that are killed by lightning and per-  
 “ haps by the noxious vapours of caverns’’\*—  
 If the blood of an extremity be prevented from  
 passing upwards by a mechanical cause,  
 congestion, inflammation and gangrene are the  
 successive consequences. If from a similar

\* See Haller's Physiology.



cause it be thus retained in the internal veins, the same must take place and more rapidly, for internal parts are weaker than external, and run of necessity more quickly into these changes. Will not the great *vis a tergo* existing in Cholera, account for the watery discharges which forms one of the symptoms of the disease? The bowels loaded with blood seek to relieve themselves by means of their numerous excretories: the pelucid part of the blood is thrown off both from the stomach and bowels, and the mucus which commonly lines the whole alimentary canal mingling with it gives it a flocculent or congee water-like appearance. The case of an Officer came under my observation where black blood also escaped: in this instance the stomach ejected a coffee-like fluid, *i. e.* the black vomit.

Having seen the analogy subsisting betwixt the disease called Cholera and that which takes place in a person who has lost much blood, can we for a moment hesitate as to the proper treatment to be pursued?—The disease is a disease of debility and demands therefore an early employment of the most powerful stimuli—Brandy should be instantly administered freely, but if the Patient complain of intoxication from its use, it ought to give place to Ammonia, ~~Ether~~, Turpentine or some other equally pow-

erful stimulant. Dr. Perston H. M. 26th has successfully administered the Tincture of Flies in large and repeated doses. Conjoined with a full Opiate stimulants have often averted the hand of death. When the powers of life however are extremely low, opium appears to hasten the fatal catastrophe. Many practitioners bleed, blister and stimulate in a breath. Is this either sensible or scientific? If one of these practitioners were called to the bed of a patient who had suffered from hæmorrhage or who had been poisoned by metallic vapours, he would (if he were not previously informed of the cause) draw out his lancet under the idea that the disease was Cholera. This is not prescribing for symptoms but for a name. Ask him why he bleeds in Cholera, he will tell you that it is to relieve cerebral congestion, or to unload the gorged lungs, or to subdue spasms. Would he bleed in a case of uterine hæmorrhage where as we have already seen in addition to all the symptoms of Cholera this very congestion of the brain and lungs is present? He surely does not believe that there is any cerebral oppression occasioned by this congestion, at least when the disease first shews itself, and this is the time when the lancet has its most numerous advocates. The Cholera Patient *like the sufferer from hæmorrhage* sinks most rapidly if raised from the hor-

horizontal posture. Does this argue an oppressed state of the brain? Are the rational state of the Patient and his undilated pupil diagnostics of apoplexy? When Cholera ends in coma, when the pupil is contracted or dilated and the Patient breathes stertorously, then most certainly there is apoplexy: but will the lancet remove this? will it give sufficient energy to the respiratory muscles to distend the collapsed lungs?—assuredly not.—But then he will say venesection subdues spasms.—I have already shewn that spasmodic action in a muscle is the result of a diminished energy of the brain—it may be produced either by withdrawing from it the arterial blood—or by poisoning its nervous fluid: these two fluids are necessary to life;—diminish one or the other and you diminish the powers of life—if you withdraw both at once, death is the consequence. The lancet then while it robs the muscles of that diminished energy which constitutes spasm, *weakens the powers of the respiratory muscles also*—and hastens asphyxia. The blood in such a case is the life, and without blood a muscle cannot contract nor a gland secrete. Many die of Cholera who from the first have never suffered from spasm. In the last stage of the disease there is no Spasmodic action. The internal parts are palsied and the

external strength is laid prostrate. If it be boasted that bleeding has been followed by success, I answer, in those cases that have recovered after venesection, the irritating cause has not been so great, the atmospheric poison has not been so deeply inhaled, and the records of our science bear witness to a successful result in other dangerous diseases where the practice has been confessedly erroneous. If it be proved (which it has been by Magendie) that the action of poisons is favored by bleeding and retarded by an artificial plethora why should the lancet be resorted to in a disease which has its origin indubitably in an atmospheric poison? The word *poison* is a relative term. It means any thing in any shape destructive to the nervous energy constituting animal or vegetable life. Misled by the relations of authors and the encomiums they have passed on the lancet, I gave venesection a trial to an extent which I can never sufficiently regret. Instead of depriving the Patient of his blood I should have been more successful had I transfused blood into his almost empty veins.

Calomel has been praised as an excellent remedy in Cholera. My own experience would rather detract from its reputation. I have used it in large and small doses and with equal ill success. I place little dependence on it

when I reflect that the disease has proved fatal where the Patient on its invasion suffered from mercurial salivation. With regard to blisters,—applied to the Chest or abdomen they only torture and consequently weaken the already debilitated Patient. I know not what effect they might have if applied to the spine. I should not augur favorably of them, for the respiratory nerves take their origin from the brain. Frictions to the legs and arms are equally useful as in syncope or any other disease of debility.

Of all the modes of treatment resorted to in nervous diseases is not counter-irritation the most generally efficacious. Zinc, Arsenic, and Copper are called tonics. May they not rather be termed irritants, seeing that when they produce cures in Ague, Epilepsy, Gout, Palsy, &c they do so only by establishing an analogous disease?—they act in a word by counter-irritation. How instantaneously does cold water dashed in the face restore a person in Syncope. A similar dash of water in ordinary circumstances would cause the blood to recede as quickly from the face as it called it up in the other instance when absent. I have already adverted to the fact of Tetanus being produced by *nux vomica*, yet the French Physicians now prescribe this poison in the disease. Dr, Currie



who was amongst the first to introduce the cold bath in tetanus attributes its beneficial effects solely to counter-irritation. Having witnessed the good effect of cold ablution in an advanced stage of Cholera, I should be inclined to try the cold bath on the first accession of the disease. Dr. Stephenson H. M. 13th Dragoons gave it a trial and reports highly in its favor. With regard to the warm bath I cannot find words sufficiently strong to deprecate its employment in Cholera. It has been used for-sooth to bring back the blood to the surface. Would it do so in the case of fainting from hæmorrhage? Having myself used it to some extent I can speak to its effects. In every instance the difficulty of breathing became greater, and the Patient sunk rapidly.

We have said that the poison of Arsenic and of certain snakes produce a train of symptoms analogous to Cholera. The natives of India treat the bite of the Cobra successfully with arsenic. This of itself ought to be no small inducement to give it a fair trial in Cholera. I have in the case of a Native given *two drachms* of Fowlerssolution at a dose and the Patient recovered. A similar quantity in a state of health would have produced Cholera. I have moreover tried the fumes of arsenic in several cases and where the remedy excited vomiting the Patients

generally recovered. Might not the Prussic acid be beneficial in the disease? Drs. Elliotson, Granville, and A. T. Thompson have used it successfully in spasmodic asthma, irritability of stomach and other diseases, which are only symptoms in Cholera. We have said that it produces an analogous disease.

It is a common practice to deny the patient cold drinks. This is extreme cruelty if no satisfactory reason can be advanced for withholding what is so urgently called for by the distressing feelings of thirst. For myself I have on one occasion indulged a female patient with a deep draught of cold water—and she said it restored her strength. To the same patient I gave half a bottle of beer which she called for, and with a like declaration :—she recovered.

If in some instances of poisoning from opium, life has been restored by blowing into the lungs with bellows after apparent death had taken place from cessation of the respiration ought not this practice to be adopted under similar circumstances in Cholera? To me it seems indicated when Respiration becomes difficult.

We have seen that the same causes in one constitution produce ague or tetanus while in another they are followed by cholera. The analogy betwixt the cold stages of cholera and

ague has struck many medical men. In the latter disease there is the *tremulous* instead of the *spasmodic* action of the muscles,—both the effect of diminished cerebral energy. When the muscles of respiration are thus affected, we have a similar shrinking of the extremities and blueness of the skin to what takes place in the Indian Epidemic.—Nay, we have in some instances vomiting also; but the secretions generally are increased instead of being diminished, for here there is not such complete exhaustion of the cerebral energy as in Cholera. A similar reaction as it is called comes on here as in the latter disease. The brain and spine once more recovering their control over the muscles, the bowels and brain which were formerly over-loaded with venous blood, from the inability of this fluid to pass into the arteries through the partially collapsed lungs, now become inflamed—and fever, or quick pulse and heat of skin are the consequence. The continued and remittent fevers, I apprehend are induced in a similar manner. Were Clutterbuck and Broussais to unite their doctrines they would be nearer the true pathology of the disease. In fever there is both inflammation of the brain and gastro-enterite, but these are not to be subdued by repeated bleedings any more than Ophthalmia Rheumatism, or other external inflammations



are to be conquered by repeated leeches. Are not stimulant applications of more service than leeches or cupping in many local inflammations?

The only difference which seems to me to subsist betwixt Tetanus and Cholera is this, viz. that while in cholera the nerves of both the brain and spine become at once inadequate to their respective functions, in tetanus for a time with a single exception (the portia dura) those only arising from the spinal chord are affected—hence the eighth pair deriving its origin from the brain continues its functions undisturbed. The blood therefore circulates well and freely, but the bowels being palsied purgatives will not act upon them and the secretion of urine also ceases. If tetanus terminate in death it is because the eighth pair becomes also involved. The patient therefore dies as in Cholera from Asphyxia.

If the nerves of motion and secretion are thus affected by particular passions and poisons should we not expect to find similar disorders in those of sensation also, and in the nerves whose office is to assist in forming bone, skin, &c? We have said that the partial interruption of the connexion of the brain and its nerves increases the functions of the latter, and that when altogether lost these functions cease entirely. This then will at once account for an increased

sense of pain often preceding the total insensibility of a part to painful feelings.—If a nerve whose office is to form skin be affected in the first manner, we have funguses and irritable ulcers ;—and if in the second we have ulcers of an indolent, eating or sloughy character. It is the same with regard to bone :—when the nerve which assists in forming it partially loses the cerebral energy a node is the consequence ;—if this energy is altogether lost we have caries and necrosis. These diseases are produced by the *slow accumulation* of lead, mercury, arsenic and *malaria* and are daily mistaken for syphilitic disorders. If the patient has at any period had venereal disease not a doubt is entertained ;—if he has not, his Physician is sceptical as to the truth of his assertion ; and if he cures him with mercury he prides himself upon his scepticism, forgetting that many diseases of malaria, some of lead\* and not a few mercurial disorders† yield to this mineral. Under the name of land scurvy we have in a malaria country sore eyes, spongy gums, cutaneous ulcers and eruptions, diseased bones, dysentery, dropsy, colics, tremblings, spasms, paralysis and glandular disease.—Do not these too frequently embitter the lot of those whose constitutions have been broken up by long courses

\* See Clutterbuck's Lectures.

† See Travers on Iritis.

of mercury, or who have really suffered from venereal poison? We find them in miners long exposed to the fumes of arsenic or copper, in those who work in lead such as glaziers, plumbers and painters. They may have their origin in grief, exposure to cold and not unfrequently, they arise from the irritation of worms, &c.

John Hunter asserts that two poisons of an analogous nature cannot remain active in the system at one time. I believe further that no two similar actions can simultaneously take place in the constitution by whatever cause produced. Ague the offspring of Malaria has yielded to terror which every body knows produces ague. I think I have seen a case of Cholera yield to this passion. The patient, a Female, upon seeing the preparations made to apply a boiling water blister to her abdomen was so terrified that she dashed from her bed and the symptoms of the disease almost immediately disappeared. This then will teach us that diseases are not always to be conquered by remedies of an opposite character, but yield sometimes to those having a similar action.

